RADIO

BODY CAPACITY IS CAUSE OF ANNOYANCE

Methods by Which Its Effects May Be Avoided — Possible Reasons for Fading Signals.

Questions have been asked regarding an apparent phenomenon in tuning. The phenomenon in the case is that just as the operator tuned in his station and removed his hands from the knob, the signals faded out; or it may have been the other way around, and if the operator touches his set while listening to a concert, the signals will fade out.

This may be caused by body capacity, and while some stations run into it quite frequently, others are not bothered at all. Those living close to a broadcasting station will never be bothered with it as it only occurs with a very close tuning. It is explained by the fact that the capacity of the body coming in contact with the set, which is very finely tuned, is thrown out of adjustment by the outside inductance.

There are several ways to guard against it, and one of the best is to line the inside of the panel with tin foil or aluminum foil and ground it. In pasting the tin foil on the back of the panel, it is cut away from all binding posts, switch points or rods to prevent short circuiting the set. There is one exception to this, and that is the ground binding post. If the tin foil is pasted over this, it is, of course, automatically grounded.

Shellac will do to make the foil adhere to the panel, which will not have to be dismantled to be lined, as the foil can be placed on in small strips.

Another method of remedying the effects of body capacity is by using metal dials on the variocoupler and variometers; and in sets where the variometers are very close to one another, moving them away will help. Or in case it is not desired to change the set, placing a nonmagnetic material between the variometers which are close to each other and grounding it will remedy the ill effects. For this case, a piece of glass such as photographers use, covered with tinfoil on one side, is effective.

Fading signals have long been encountered by amateurs when receiving long-distance stations. In this case, the signals from a goodly distance away may be coming in loud and clear and then without warning fade away. In a few seconds they may return with all their force, and then when the amateur is congratulating himself, again the voices or music die out. Or fading may take the form of varying intensity of signals, one minute the operator being forced to strain his ears to catch the sound while the next voices may be loud and clear.

There have been many theories advanced for this phenomenon, and we are giving today two of the latest. The radio division of the Department of Commerce is reported to be under the impression that fading occurs when a cloud passes between the transmitting station and the receiving set. This theory has been one of the most popular among the experts, and recent tests have been made to obtain more complete data. If the passing cloud theory is a good explanation of fading there will be some new radio development very shortly. The effects of various types of clouds upon the signals is being studied, and the results of this study will be of interest to everyone interested in radio. Government officials are interested in eliminating fading, or overcoming it as much as possible, largely from the standpoint of the amateur, as the commercial stations, having much greater power than amateur sets, are able to overcome the atmospheric effects to a great extent.

The other theory, which has a close relation to the cloud theory, is that fading occurs when the signals pass through an area where rain is falling. In this theory, the idea is brought out in a different manner. It is stated in effect that clouds are a benefit to the signals, but that the rain will hurt them. The theory is that the condensation of the particles of moisture in the air which form the clouds has the property of making this medium highly conductive to radio signals. Just before a storm when there is more condensation in the clouds, the signals should be at their strongest. When the storm breaks, and the air becomes saturated, the condition is said to change and the falling rain actually grounds the signals. This sudden change in atmosphere is stated as the reason for the varying intensity in the signals.

An approximate method of measuring the antenna resistance is by means of a condenser and a calibrated 25-ohm resistance unit connected in series. This so-called phantom antenna is then connected with the antenna and ground circuit to a double pole, double throw switch, so that the output of the transmitting set can be connected either to the antenna and ground or to the phantom antenna circuit.

To find the antenna resistance at any wave length, first tune the set to the desired wave length with the transmitter connected to the antenna and ground and note the antenna current. Throw the output of the transmitter on the phantom antenna circuit and adjust the resistance and capacity until the antenna ammeter shows the same reading. The value of the resistance in the phantom circuit is the approximate antenna resistance at that wave length. This method of measuring the antenna resistance is by no means accurate, but will serve as a value from which comparative data can be obtained. By plotting a curve representing the antenna resistance at different wave lengths it is possible to determine whether the antenna being used has its minimum resistance at the wave length on which the transmitting is done.

Perhaps by changing the physical dimensions of the antenna the minimum resistance can be shifted to the wave length on which it is desired to transmit.

If a counterpoise is not used, the effect on the antenna resistance can readily be measured, approximately, by erecting a temporary one and measuring the antenna resistance before and after the erection. Again it is well to plot a curve showing the relation between the wave length and antenna resistance.

In no case will the curve showing the relation between wave-length and antenna resistance be smooth. Don't allow bumps in the curve to lead one astray. The absorption of energy by some nearby object will cause the antenna resistance at certain wave lengths to show fictitiously high wave lengths.

COLONEL GREEN A RADIO FAN

Son of Hetty Has an Elaborate Apparatus at His Home in New Bedford.

Round Hills, the country home of Col. Edward H. R. Green, son of the late Hetty Green, at New Bedford, Mass., sounds like a haunted estate since its owner has been bitten by the radio bug, says the New York World.

In the sun room of the house stock quotations, weather reports, music and speeches flow all day from the receiving station there. In the boathouse come the booming tones of the amplifier.

That's all there is now, but Colonel Green has not done yet. Within a few days his new six-room studio, housing the most complete broadcasting station in the country, will be finished.

Colonel Green is not enjoying his radio pleasures alone. The first tryout of his truck was made a few days ago, and it went rolling about the neighborhood reeling off concerts and talk from Newark and Schenectady for the delighted farmers.

But the amplifier is the colonel's pet. This is just such a machine as was used to make President Harding's inaugural address audible to the 125,000 gathered about the capitol. At Round Hills the sound will be plainly heard over a radius of five miles.

"Anybody who has a set of two good ears has all the required receiving apparatus," the colonel says. "I'm so interested in this thing that I haven't time for anything else. I'm like a child with a new toy, who can't be induced to put it down."

TIPS TO THE RADIOIST

Radio concerts are being given in public parks all over the country.

An international union of radio operators has been founded in Brussels.

A boy in Plainfield, N. J., has built a radio set the size of a match box.

Radio concerts are proving of decided benefit to inmates of institutions for the insane.

In Montana radio is furnishing entertainment to the oil well drillers during their idle hours.

The most northerly wireless station on the globe is probably at the village of Noorvik, just inside the Arctic circle, with a population of 300 Eskimos.

An Oklahoma doctor who has a large number of hospital patients maintains a radio outfit on his automobile so that he can be instantly reached if needed at the hospital.

In the case of the new receiving apparatus that goes on the throat another slang phrase becomes legitimate. To say "He got it in the neck" now means receiving radio.

Mr. Edison took out a radio patent as early as 1881, but he says it is difficult to say who should be called the inventor of the wireless. He thinks it has just been "built up."

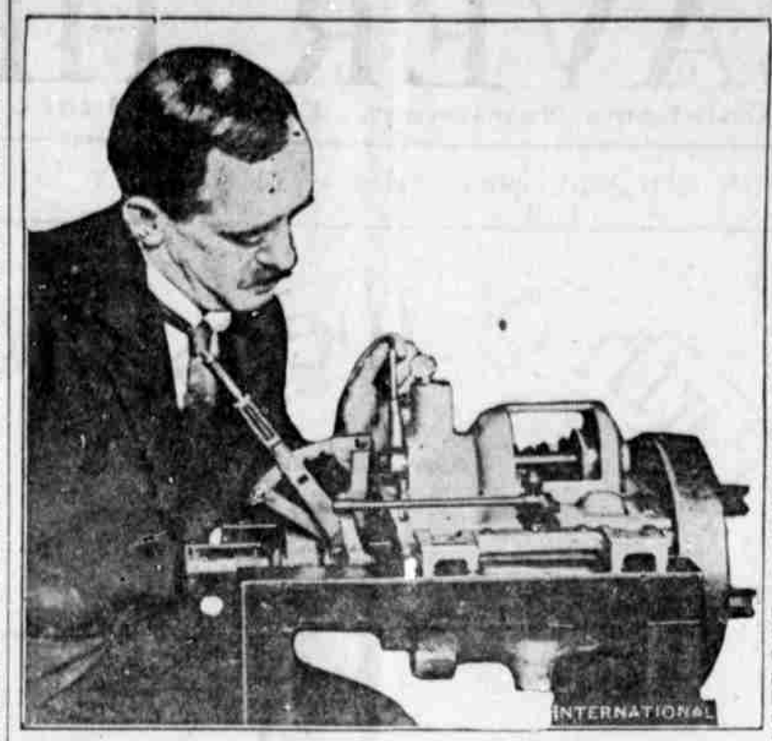
Another feature of radio has come to light. In these days of the dry dinner guests are able to remain comfortably at home and hear the after-dinner speeches, cutting them as short as may be desirable.

Cattle are now skinned by electricity. New as to cattle, perhaps, but many radio fans have been skinned by sellers of phony stock for some time past.

The United States naval observatory sends time signals to Australia by radio.

It is now said that communication with Venus would be entirely within the realm of possibility were it not for the great cost. Dr. Abbott reports that the cost of sending radio waves to Venus would be enormous. That planet reflects light as if it were surrounded by clouds and all conditions indicate intelligent life.

PREVENTS STEALING OF MOTOR CARS



Mr. D. D. Oyle, member of the Institute of Automobile Engineers of England, is shown with his "Tamproof" device, which is attached to the gear box of the automobile, and which is locked by means of a key, making it impossible for anyone to steal the car by attempting to release the brakes. Should a car in "neutral," while on a steep grade, begin to slip down hill, the safety device automatically prevents the car from running wild, as it locks the gears and brakes. English automobile manufacturers are applying the device to all new cars.

Tips for Motorists.

Slow down at crossings.

The temperature of a battery should be below 110 degrees.

Tires wear better in cold weather than in summer months.

Give all vehicles, especially loaded trucks, a good half of the road.

Because new cars are stiff and rigid, they are found to be hard on tires.

The favorite outdoor sport of some drivers appears to be taking a chance at crossings.

To clean brass castings of greasy deposits, boil them in a solution of potash or lye.

The endurance of an automobile is unlimited; it is simply up to the operator for service.

Two drops of oil in the starter and generator cups every 2,000 miles insure perfect lubrication.

PROPER CARE OF NEW AUTOMOBILE

Much Trouble Can Be Traced to Neglect in Making Adjustments Essential to Start.

DRIVER OFTEN IS CARELESS

Owner Should Start His Motoring Carter With Fixed Idea That His Car Is a Piece of Machinery Requiring Attention.

The life of an automobile depends considerably upon the care which it receives. Most of the motor-car trouble can be traced to putting off adjustments that can be regularly attended to. Carelessness of the owner has been the cause in many cases hence he is to blame for the short service of his car.

Begin Care With Purchase.

Proper care of the car should begin with the purchase. Right then the owner should start his motoring career with the fixed idea that his automobile is a piece of machinery, subject to wear and requiring just as much attention as you would bestow on a dynamo, a grandfather's clock or a radio outfit.

Keeping this in mind will offset the common impression that many motorists possess. Not a few drivers have sentimental thoughts concerning their cars, believing that they will always stand up without proper attention. Such men are usually disillusioned just when the service of their car means most to them.

Regular attention and care prolongs the service of the car to a vastly greater extent than periodical complete overhaulings. Get the habit of inspecting your car before making a trip, just the same as the far-sighted horseman will rub his hand over his animal before mounting.

Inspect Vital Parts.

A glance under the hood with the motor running, attention to any sound not in tune, a measurement of gas, water and oil, a test of the wires and tires will be well worth the slight delay in starting. Such an inspection of vital parts will offset unnecessary annoyances and greater delay later on the trip.

The motorist should study the complete instruction book as supplied him by the manufacturer in order that he will know the proper care of all the parts of his car. As he becomes familiar with as many parts as possible, he will fully realize that service rests primarily upon the attention the car receives.

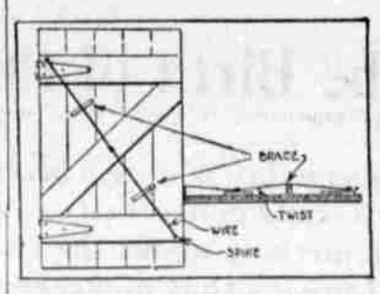
SAGGING OF GARAGE DOOR CAN BE CURED

Supported by Tension Wire It Will Hang in Place.

Illustration Shows Easy Way to Effect Permanent Repair—Few Lengths of Strong Wire and Three Spikes Needed.

Garage doors have a habit of sagging after a time, making it difficult to close them properly or else necessitating their removal and planing off the bottom. Unless the door is small or exceptionally well made, planing the bottom affords only temporary relief.

An easy way to effect a permanent cure for this trouble is to drive two spikes in opposite corners of the door as shown and connect them with a few lengths of strong wire. Place two blocks of wood under the wire, forcing it out a few inches from the door. Take a third spike and insert it between the strands of wire and twist the wire with the spike. This will act as a turn-buckle and draw the bottom of the door up. When sufficient clearance is obtained, drive the center spike into the door and you have a permanent repair. In cases where the door has sagged to a great extent, it is better to give the wire only a few turns every day until proper clearance is obtained.—Popular Science Monthly.



Supported by the Tension Wire, the Garage Door Will Hang Without Sagging From Its Hinges.

AUTOMOBILE NEWS

Keep battery terminals clean.

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The lubricating of the working parts of an automobile is to prevent any two pieces of metal that are working one against the other from touching.

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Don't permit your engine to keep running while you and others are away from it for any length of time. In stopping your car always stop at the right hand curb.

• • •

A monthly inspection should be made of the brake rods and connecting parts. Clean off all the accumulated dirt and rust so that they will act as freely and efficiently as possible.

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Use a heavier grade of lubricating oil in the motor, transmission and differential in summer than in winter. The oil should be drained from the motor at intervals not to exceed every 1,000 miles.

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When the cooling fluid is kept in motion by thermo-syphon action, it is quite important that the radiator be kept reasonably full in order that there be a back resistance to aid in forcing the water forward.

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A magnetized screwdriver is a great convenience for the man who works about his car. The magnetized tool will pick up screws, nuts, bolts or other metal objects that have dropped into inaccessible places.

ROAD BUILDING

CLEAN MATERIALS FOR ROAD

Builder Gets Perfect Concrete Aggregates Along Route of Job by Ingenious Method.

Elimination of the long haul with the assurance at the same time that sand and gravel used in concrete road construction would be thoroughly clean and free from organic impurities was achieved in an ingenious and economic manner on a section of the Denver-Morrison highway. Comparatively shallow deposits of both required components of the aggregate to be used in mixing this concrete were discovered in the bed of a small stream which flowed within a quarter of a mile of the job.

The contractor determined to utilize this natural deposit rather than incur the expense and loss of time incident to purchase or preparation of the aggregates in town and consequent long haul to the mixer. As it was necessary to wash and screen his aggregates as well as to elevate for loading into trucks, the contractor decided to attempt these operations all in one move if possible.

Accordingly he obtained a six-inch centrifugal pump and about 800 feet of six-inch iron pipe. A small sump or pit was excavated in the bed of the stream and the intake of the centrifugal pump was laid in this pit. The bottom of this pit was below the level of the ground water in the gravel bar or bed of the creek. The pump took in water, sand and pebbles as large as three inches in diameter from this sump and delivered them through the discharge line which was approximately 700 feet in length to a flat screen on top of the bins.

The supply of sand and stone in the sump was continuously renewed by means of horse-drawn slip scrapers. A screen composed of flat bars was placed across the top of the sump to eliminate intake of oversize stones which could not be handled by the pump. At the end of the delivery line, the water, sand and stone were discharged upon a flat screen having square three-eighths of an inch mesh opening. The water and sand, of course, fell through this screen while the larger pebbles rolled on over it and thence into a bin for pebbles.

Below the first screen was a sand settling box. The water and sand fell into this box and the sand being heaviest, immediately settled to the bottom while the water carrying the dirt and silt escaped through a waste-way in the top of the box. As the sand accumulated in the bottom, it was discharged through gates at periodic intervals into the sand compartment of the bins beneath.

The force of the water, sand and stone passing through the pipe line was sufficient to scour every particle absolutely free from dirt and impurity of every kind. The pump was driven by a 60-horsepower traction engine.

A Novel Method of Washing and Elevating Gravel for Road Construction.

ROAD-MAINTENANCE TRUCK

Implement Carries Concrete Mixer and Combination Bin for Cement, Sand and Gravel.

A highway-maintenance truck, described in the Popular Mechanics Magazine, has been put into operation in California, which would seem to be the last word in complete equipment. It carries a concrete mixer and combination material bin for cement, sand and gravel. Also an air compressor and air tank which can be used for driving a rock drill for road work, or can be used in connection with a water-supply tank as a spraying outfit or fire extinguisher.

There is also a centrifugal pump which can be used for filling the water tank or for pumping out cisterns or caissons. The truck engine furnishes all necessary power for driving the auxiliary equipment at various speeds through a special transmission. Flanged wheels may be substituted if so desired.

Kill Insects by Plowing.

Plowing or spading up gardens and truck patches this fall before the ground freezes will reduce the job of fighting insects next season, because stirring the soil at this time of the year kills many grubs and pupae in the ground.

Illuminate Good Roads.

A huge illuminated map shows the progress of all state hard roads under construction in Illinois by the state highway division for exhibit at county fairs throughout the state.

Home Town Helps

ROCK MAPLE FIRST CHOICE

Good Reasons for Its Being the Favorite Tree for Streets of the Small Town.

Roughly speaking, trees are used for one of three purposes. The first, street planting, is that which is most apt to come within our ken. Frequently, especially in new towns and "developments," certain trees are to be planted along certain streets; and householders are asked to "do their bit" by purchasing and setting out trees to stand before their homes. The selection is generally made by a committee, often upon a slight knowledge of the subject, based, perhaps, upon other plantings which have been made elsewhere under their observation, perhaps not particularly successful plantings. The argument is that one must have something, and as there are not so very many kinds of trees one must stick to those one has seen, since anything out of the common probably will not grow. And so the decision is made.

This method of selection, perhaps, may account for the widespread planting of the rock maple in American small-town streets. The choice of this tree is one against which the tree lover should, and the tree knower will, protest. The rock maple is not particularly fast growing. It is awkward in its habit, and is brittle and frail. It is not as decorative as many of its sturdier brethren, and when so many better trees may be had at no greater trouble and expense, its popularity is difficult to understand.

For streets there is no tree superior to the Norway maple. With its symmetrical form and luxuriant foliage, which turns so beautiful in the fall, no other maple surpasses it. It grows with fair rapidity and it is sturdy and resistant.—Amelia Hill in Art and Decoration.

ARTISTIC GATE

The garden gate may be as artistic as a front door, even if gates are tucked away at the foot of the flower garden. The design from the Builders' Age offers many suggestions. It is, perhaps, better looking without the pergola effect if used for the small garden.

Apple Trees in Parkways.

In Flossmoor, Ill., apple trees were planted in the parkways when the subdivision was laid out years ago. The trees have been neglected both as to spraying and pruning, but they have grown well and are now bearing. When the suburb is built up the home owners will be able to take care of the trees and reap a harvest each year from their parkway space.

While the ornamental value of an apple tree in such a place may be open to debate, there is no question about its being superior to the Carolina poplars which most subdividers plant, and the apple trees ought to be a better selling point. They are good for 50 years, and begin to bear fruit just about the time the Carolina poplar is ready to cut down.—Chicago Daily News.

New Roofs for New Houses.

New ideas in roofs are being adopted everywhere. No longer do we see two or three types of roofs, to the exclusion of others. The Gothic, pointed and daring, with long sloping roof with its appearance of being thatched; the low dormer with its many mullioned windows; the roof with a touch of Moorish in its lines—these are only a few of the types seen in the new houses.

"Dail Eireann."

The meaning of "Feisire Dail Eireann" (or F. D. E.), commonly called "Dail Eireann"—according to a statement made in one of the new volumes of the Encyclopedia Britannica—is "Members of the Assembly of Ireland," a title given to themselves by members of the Irish republican party. With the signing of the Irish Free State treaty, however, republicanism has been dropped by a majority of the members. The pronunciation of "Dail Eireann" is "dahl eerahn."